

**SUBSTRATE OPTICAL WAVEGUIDES HAVING FIBER-LIKE SHAPE AND
METHODS OF MAKING THE SAME**

ABSTRACT OF THE DISCLOSURE

Substrate optical waveguides having curved major surfaces and methods for making the same are disclosed. In one exemplary embodiment, a photosensitive cladding layer is pattern exposed to actinic radiation through a first gray-scale mask and subsequently developed to define a groove therein having a curved major bottom surface. A layer of photosensitive core material is thereafter formed over the groove, pattern exposed to actinic radiation through a second gray-scale mask, and subsequently developed to define a core element. The core element is disposed within the groove and has a curved major bottom surface and a curved major top surface.